

CLAIM AMENDMENTS

1.-10. (Cancelled)

11. (Currently Amended) A method usable with a subterranean well having a casing, the method comprising:

producing fluid from the well;

~~positioning a non-acoustic sensor downhole inside a passageway of the casing; and~~

using ~~the~~ a non-acoustic sensor during the producing to measure a characteristic in a region of the well ~~located~~ outside of the casing;

placing the sensor in a packer;

deploying the packer downhole;

setting the packer;

engaging a slip to secure the packer to the casing; and

positioning the sensor against an interior wall of the casing in response to the setting of the packer.

12.-17. (Cancelled)

18. (Original) The method of claim 11, wherein the sensor comprises a resistivity sensor, a nuclear sensor, a gravity/force sensor, a pressure sensor or a temperature sensor.

19. (Cancelled)

20. (Original) The method of claim 11, further comprising:
puncturing the casing to measure the characteristic.

21.-30. (Cancelled)

31. (Currently Amended) An apparatus usable with a subterranean well having a casing, the apparatus comprising:

a punch adapted to be positioned inside a passageway of the casing and pierce the casing to establish communication with a region outside of the casing; and

a sensor adapted to be positioned inside the passageway of the casing to indicate a characteristic associated with the region.

32.-34. (Cancelled)

35. (Original) The apparatus of claim 31, further comprising:
sealing elements to seal off a portion of the casing pierced by the punch.

36. (Cancelled)

37. (Original) The apparatus of claim 31, wherein the punch includes a cavity and the sensor is located inside the cavity.

38. (Original) The apparatus of claim 31, wherein the punch moves to pierce the casing in response to a packer being set.

39. (Original) The apparatus of claim 31, further comprising:
sleeves to compress the punch to force the punch into the casing.

40. (Original) The apparatus of claim 31, wherein the punch includes another passageway to establish communication between the region and the sensor.

41.-46. (Cancelled)

47. (Currently Amended) The ~~packer~~ apparatus of claim ~~41~~ 31, further comprising: sealing elements; and
sleeves to concurrently force the punch into the casing and compress the sealing elements.

48.-49. (Cancelled)

50. (Original) A method usable with a subterranean well having a casing, the method comprising:
providing a puncture device inside a packer; and
actuating the puncture device when the packer is set to pierce the casing to establish communication with a region outside of the casing.

51. (Original) The method of claim 50, further comprising:
sensing a characteristic of the region outside of the casing via the communication established by the puncture device.

52. (Original) The method of claim 50, wherein the sensing comprises sensing one of a resistivity, a pressure, a nuclear measurement and a gravity.

53. (Original) The method of claim 50, further comprising sealing off a portion of the casing pierced by the punch.

54. (Original) The method of claim 50, wherein the puncture device comprises a shaped charge.

55. (Original) The method of claim 50, wherein the puncture device comprises a punch.

56. (Original) The method of claim 55, further comprising actuating sleeves to force the punch into the casing when the packer is set.

57.-60. (Cancelled)

61. (Currently Amended) A method usable with a subterranean well, comprising:
establishing a sealed region downhole;
within the sealed region, ~~piecing~~ piercing a casing of the well; and
without flowing fluids uphole from the sealed region, using the pierced casing to measure
a characteristic associated with a region outside of the casing.

62. (Original) The method of claim 61, wherein the establishing comprises:
setting at least one packer downhole.

63. (Cancelled)

64. (Original) The method of claim 61, wherein the piercing comprises:
using a punch.

65. (Original) The method of claim 61, wherein the establishing comprises:
setting multiple spaced packers.

66. (Original) The method of claim 61, further comprising:
selecting the region to measure one of a gravity, pressure, resistivity and nuclear
measurement associated with the region.

67. (Original) A method usable with a subterranean well, comprising:
establishing at least one sealed region downhole;
in said at least one sealed region, piercing a casing of the well; and
without flowing fluids uphole from the sealed region, using the results of the piercing to
establish an array of downhole sensors.

68. (Original) The method of claim 67, wherein the establishing comprises:

setting at least one packer downhole.

69. (Cancelled)

70. (Original) The method of claim 67, wherein the piercing comprises:
using a punch.

71. (Original) The method of claim 67, wherein the establishing comprises:
setting multiple spaced packers.

72. (Original) The method of claim 67, further comprising:
selecting the region to measure one of a gravity, pressure, resistivity and nuclear
measurement associated with the region.

73. (Original) The method of claim 67, further comprising:
measuring a force associated with the piercing; and
using the measured force to derive a strength of a formation.

74. (Original) The method of claim 67, further comprising:
measuring a rate associated with the piercing; and
using the measured rate to derive a strength of a formation.

75.-81. (Cancelled)

82. (New) An apparatus usable with a subterranean well having a casing, the
apparatus comprising:

a punch to be positioned inside a passageway of the casing and pierce the casing to
establish communication with a region outside of the casing; and

a sensor to be positioned inside the passageway of the casing to indicate a resistivity
associated with the region.

83. (New) An apparatus usable with a subterranean well having a casing, the apparatus comprising:

a punch to be positioned inside a passageway of the casing and pierce the casing to establish communication with a region outside of the casing; and

a sensor to be positioned inside the passageway of the casing to indicate a nuclear measurement associated with the region.

84. (New) An apparatus usable with a subterranean well having a casing, the apparatus comprising:

a punch to be positioned inside a passageway of the casing and pierce the casing to establish communication with a region outside of the casing; and

a sensor to be positioned inside the passageway of the casing to indicate a density associated with the region.

85. (New) An apparatus usable with a subterranean well having a casing, the apparatus comprising:

a punch to be positioned inside a passageway of the casing and pierce the casing to establish communication with a region outside of the casing;

a sensor to be positioned inside the passageway of the casing to indicate a characteristic associated with the region; and

at least one slip to secure the apparatus to the casing.

86. (New) The apparatus of claim 85, wherein the punch includes a cavity and the sensor is located inside the cavity.

87. (New) The apparatus of claim 85, wherein the punch moves to pierce the casing in response to a packer being set.

88. (New) The apparatus of claim 85, further comprising:
sleeves to compress the punch to force the punch into the casing.
89. (New) The apparatus of claim 85, wherein the punch includes another
passageway to establish communication between the region and the sensor.
90. (New) A packer comprising:
a tubular member;
sealing elements to form seals between the tubular member and a well casing and form a
sealed region between the seals;
a puncture device to be positioned inside a passageway of the casing and pierce the
casing to establish communication with a region outside of the casing, the puncture device
comprising a punch;
a sensor to be positioned inside the passageway of the casing to indicate a characteristic
associated with the region outside of the casing; and
sleeves to force the punch into the casing.
91. (New) The packer of claim 90, wherein the sleeves concurrently force the punch
into the casing and compress the sealing elements.
92. (New) The packer of claim 90, wherein the packer comprises a hydraulically set
packer.
93. (New) The packer of claim 90, wherein the puncture device includes a
passageway to establish communication between the region and the sensor.
94. (New) A system usable with a subterranean well having a casing, the system
comprising:
a non-acoustic sensor to measure a characteristic of a region of the well outside the
casing; and

a packer connected to the sensor and adapted to position the sensor against an interior wall of the casing in an expanded state of the packer, the packer comprising at least one slip to secure the packer to the casing.

95. (New) The system of claim 94, wherein the sensor is part of a network of sensors.

96. (New) The system of claim 94, wherein the sensor comprises a resistivity sensor, a nuclear sensor, a gravity/force sensor, a pressure sensor or a temperature sensor.

97. (New) The system of claim 94, wherein the sensor is adapted to measure the characteristic without requiring puncturing of the well casing.

98. (New) The system of claim 94, further comprising:
a puncture device attached to the packer to puncture the casing to permit the sensor to measure the characteristic.